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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,457	07/19/2006	Yumi Muroi	125404	4636
25944	7590	11/14/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER KEMMERLE III, RUSSELL J	
			ART UNIT 1791	PAPER NUMBER
			MAIL DATE 11/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/550,457

**Applicant(s)**

MUROI ET AL.

**Examiner**

Russell J. Kemmerle

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 26 September 2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuichi (JP Patent Publication 2002-201082, as discussed in applicant's current

specification) in view of Suzuki (US Patent 4,354,991) and Kani (JP Patent Publication 61-026565). Citations to Kani refer to where that information can be found in the translation accompanying this Office Action.

Shuichi discloses a method of making a silicon carbide (SiC) honeycomb structure by mixing and kneading a combination of SiC, metal Si, an organic binder and an alkaline earth metal to form a clay. This clay is then shaped into a honeycomb structure, heated to remove the binder, then fired to form the finished body (see applicant's current specification, page 1).

Shuichi as discussed by the applicant does not disclose that the firing be performed in a protective container made of SiC, or that an aluminum containing solid also be placed in the container during firing.

Suzuki discloses a method of making a SiC body where the shaped SiC body is fired in a container made of SiC, in order to control the atmosphere during firing and create a denser, purer finished product (Col 6 lines 20-33).

Kani discloses a method of making a SiC body that involves molding and sintering a shaped SiC body, where the sintering occurs with an aluminum (Al)-containing substance present with the body (page 2, claim 1). Kani further discloses that this can be achieved by placing a lump (i.e., a block body) or powder (i.e., a particulate body) of Al metal with the green SiC body in a crucible with a lid during sintering, and the quantity of Al should be from 0.01-5% by weight based on the weight of the SiC body (paragraph spanning pages 6-7).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have modified the method taught by Shuichi, by firing the ceramic in a SiC crucible having an Al-containing material present in the crucible during firing. This would have been obvious because Suzuki discloses that placing the body in a SiC crucible during firing creates a desirable product without the need for hot pressing, and Kani discloses that placing an Al-containing material in the crucible during firing produces the desired result of Al as a sintering aid without having the Al as an impurity in the final piece.

Referring to claim 3, while Kani discloses specific examples using Al metal, Kani also says that any Al-containing material which will produce Al vapor during sintering would work, of which aluminum oxide is one (see, Arakawa, JP Patent Publication 61-291461, translation enclosed).

Referring to claim 5, while Kani discloses the use of a particulate body, it does not disclose the grain size of that particulate body. However, particulate bodies having a grain size from 0.01-1 mm are well known to those skilled in the art, and would have been obvious absent a showing of unexpected results.

Referring to claim 7, since the block body using the materials of the present invention is found to be obvious, as discussed above, a block body having the specific properties recited in claim 7 (which would be dependant mostly on the material) is also found to be obvious.

Referring to claim 8, the references discussed above do not discuss a specific separation distance between the Al-containing body and the SiC body. However, one of

ordinary skill in the art would know that the Al-containing body should be close to the SiC body in order for the Al vapor to easily reach the body, but not in contact with the SiC body as that would cause them to sinter together. Therefore optimizing the placement of the articles to within 50 cm of each other would be within the ability of one skilled in the art to create a situation where the Al vapors act on the SiC body during sintering, but they two materials do not sinter to each other.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell J. Kemmerle whose telephone number is 571-272-6509. The examiner can normally be reached on Monday through Friday, 8:30-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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